## CLAIMS

1. Method for controlling the configuration of elements of a telecommunications network (N) comprising a plurality of nodes, the method comprising the steps of:

- generating a model configuration (M1) of said elements, said model configuration comprising, for at least one function of each element subjected to control, a respective model of implementation of the function itself,

- collecting, for each element subjected to control, at least one respective set of configuration data (..., $CF_{k-1}$, $CF_k$, $CF_{k+1}$, ...) of the element itself, and

- verifying (C), for each element subjected to control and in the absence of interaction with the element itself, the correspondence between said at least one function, as implemented on the basis of said at least one respective set of configuration data of the element, and said model of implementation of the function itself included in said model configuration (M1),

characterised in that said steps of generating a model configuration (M1), collecting said at least one respective set of configuration data of the element and verifying said correspondence are performed in relation with at least one among:

- an interfacing element between two nodes (k, k+1) of said plurality, and

- a plurality of respective sets of configuration data (CF, CM) of said element, said plurality of respective sets of configuration data expressing respective different configuration states of the element.

2. Method as claimed in claim 1, characterised in that it further comprises the steps of:

- simulating (S), on the basis of said at least one set of configuration data of the element and in the absence of interaction with the element subjected to

control, the implementation of said at least one function by generating at least one respective outcome of implementation of the function itself through the element subjected to control, and

- verifying (C) the correspondence between said at least one respective outcome of implementation obtained by simulation and the corresponding implementation model included in said model configuration (M1).

3. Method as claimed in claim 1 or claim 2, characterised in that it comprises the step of selecting said plurality of respective sets of configuration data as exhaustive representation of the configuration states allowed for said element.

4. Method as claimed in any of the claims 1 to 3, characterised in that it comprises the step of modifying the configuration data included in said at least one respective set of configuration data (..., $CF_{k-1}$, $CF_k$, $CF_{k+1}$, ...) of each element subjected to control in order to obtain the correspondence between the actual configuration of the element and said model configuration (M1).

5. Method as claimed in any of the previous claims, characterised in that it comprises the step of selecting said model configuration (M1) as representative of at least one among:

- a set of configuration data meant to be identical on all homologous elements of the network in the cases of configuration control;
- a set of expected behaviours for an element in the case of functional analysis; and
- a set of exhaustive behaviours of all elements able to be traversed in the case of simulation of a determined service throughout the network.

6. Method as claimed in any of the claims 1 to 5, characterised in that it comprises the step of providing a control management station (W1) for the generation of said model configuration (M1).

7. Method as claimed in any of the previous claims, characterised in that it comprises the step of providing a plurality of control stations (U1, ..., Un) able to start the execution of said verifying step (C).

8. Method as claimed in any of the claims 1 through 7, characterised in that at least one, and preferably all, of said steps of generating, collecting, simulating, verifying and modifying are configured to be performed in centralised position with respect to said elements subjected to control.

9. Method as claimed in claim 2, characterised in that said simulating step is performed on the basis of at least one respective set of analysis functions (A) representative of a respective element model.

10. Method as claimed in claim 2 or claim 9, characterised in that said simulating step is conducted in step-by-step fashion.

11. System for controlling the configuration of elements of a telecommunications network (N) comprising a plurality of nodes, the system comprising:

- a database (DB) containing a model configuration (M1) of the elements of said network (N), said model configuration comprising for at least one function of each element subjected to control, a respective model of implementation of the function itself; said database (DB) further comprising, for each element subjected to control, at least one respective set of configuration data (..., $CF_{k-1}$, $CF_k$, $CF_{k+1}$, ...) of the element itself, and
- a verification module (C) to verify, for each element subjected to control and in the absence of

interaction with the element itself, the correspondence between said at least one function, as implemented on the basis of said at least one respective set of configuration data, and said model of implementation of the function itself included in said model configuration (M1),

characterised in that said database (DB) contains a model configuration as well as a set of configuration data to allow the aforesaid verification by said verification module (C) in relation with at least one among:

- an interfacing element between two nodes (k, k+1) of said plurality, and

- a plurality of respective sets of configuration data (CF, CM) of said element, said plurality of respective sets of configuration data expressing respective different configuration states of the element.

12. System as claimed in claim 11, characterised in that it comprises:

- a simulation module (S) to simulate, based on said at least one respective set of configuration data of the element and in the absence of interaction with the element subjected to control, the implementation of said at least one function and generating at least a respective outcome of implementation of the function itself by the element subjected to control, and in that

- said verification module (C) is configured to verify the correspondence between said at least one respective outcome of implementation obtained by simulation and the corresponding implementation model included in said model configuration (M1).

13. System as claimed in claim 11 or claim 12, characterised in that said verification module (C) is configured to operate on a plurality of respective sets of data constituting an exhaustive representation of the

allowed configuration states for said at least one element subjected to control.

**14.** System as claimed in any of the claims 11 through 13, characterised in that the system itself is configured to modify the data included in said at least one respective set of configuration data (..., $CF_{k-1}$, $CF_k$, $CF_{k+1}$,...) of each element subjected to control in order to obtain the correspondence between the actual configuration of the element and said model configuration (M1).

**15.** System as claimed in any of the claims 11 through 14, characterised in that said database (DB) contains a model configuration (M1) representative of at least one among:

- a set of configuration data that it is required be identical on all the homologous elements of the network in the cases of configuration controls;
- a set of expected behaviours for an element in the case of functional analyses; and
- a set of exhaustive behaviours of all elements that can be traversed in the case of simulation of a determined service throughout the network.

**16.** System as claimed in any of the claims 11 through 15, characterised in that it comprises a control management station (W1) for generating said model configuration (M1).

**17.** System as claimed in any of the previous claims 11 to 16, characterised in that it comprises a plurality of control stations (U1, ..., Un) able to drive said verification module (C).

**18.** System as claimed in any of the claims 11 a 17, characterised in that at least one, and preferably both, of said database (DB) and said verification module (C) are

located in centralised position relative to said elements (..., k-1, k, k+1, ...) subjected to control.

**19.** System as claimed in claim 12, characterised in that said simulation module (S) comprises a respective set of function for the simulation of respective functionalities.

**20.** System as claimed in claim 12 or claim 19, characterised in that said simulation module (S) operates according to step-by-step simulation modes.

**21.** Computer program product able to be directly loaded into the internal memory of at least one digital computer and comprising portions of software code to implement the method as claimed in any of the claims 1 through 10.